DAIDS

VIROLOGY MANUAL

FOR HIV LABORATORIES

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Compiled by

THE DIVISION OF AIDS

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and

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BIOSAFETY

On December 6, 1991, the Occupational Safety and Health Administration (OSHA) enacted: Occupational Exposure to Bloodborne Pathogens, Final Rule: 29 CFR Part 1910-1930. The main purpose of this standard is to regulate facilities where employees could be exposed to bloodborne pathogens and to promote safe practices in an effort to minimize the incidence of disease due to these pathogens. Furthermore, it strives to reduce/eliminate occupational exposure to Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), and other bloodborne pathogens that employees may encounter in their workplace.

There are a number of excellent principles that should be followed when working with materials that contain bloodborne and other pathogens. These include:

It is prudent to minimize all exposure to all pathogenic organisms.

Risk of exposure to pathogenic agents should never be underestimated.

Laboratory areas should institute as many engineering and work practice controls as possible to eliminate or minimize exposure to pathogenic organisms.

As provided in 29 CFR 1910-1930, occupational exposure means reasonably anticipated skin, eye, mucous membrane or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee duty. Other potentially infectious materials may be semen, vaginal secretions, cerebrospinal fluid, amniotic fluid or any potentially infected body fluid. It may also include unfixed tissue or organs, HIV/HBV-containing cell or tissue cultures, organ cultures and their culture medium or other solution.

There are a number of areas that must be addressed in order to effectively eliminate or minimize exposure to bloodborne pathogens. The principle investigators, laboratory supervisors, and all laboratory personnel are responsible for ensuring compliance in these areas. Areas that should be included are:

The use of Universal Precautions

Establishing appropriate engineering controls

Implementing appropriate work practice controls

Using necessary personal protective equipment

Implementing appropriate housekeeping procedures

Universal Precaution Guidelines are based on the assumption that medical history and examination cannot reliably identify all patients infected with HIV, HBV, or other potentially infectious disease. Therefore, blood and body precautions must consistently be used with ALL patients and patient samples.

Engineering Controls are used to eliminate or minimize employee exposure to bloodborne pathogens. Equipment such as sharps disposal containers, hand washing sinks, biological safety hoods and special ventilated laboratory facilities are used as appropriate.

A number of Work Practice Controls help to reduce risk. Employees should wash their hands immediately after removal of gloves or other personal protective equipment. Following any contact of body areas with blood or infectious materials, employees should wash/flush their hands or exposed mucous membranes with water. Contaminated needles or other sharp objects (pipette tips, serological pipettes etc.) should be disposed of appropriately. Needles should not be recapped. Eating, drinking, smoking, applying cosmetics and handling contact lenses is prohibited. Food and drink may not be kept in laboratory areas. Procedures should be conducted in such a manner to minimize splashing, spraying or generation of aerosols. Infectious materials must be placed in leak-proof containers. An appropriate biohazard warning label should be attached to any contaminated equipment. Many other aspects of work practice should be considered to minimize the possibility of exposure.

Personal Protective Equipment is one of the main lines of defense against bloodborne pathogens. Gloves, gowns, face shields/masks, safety glasses/goggles, biological safety hoods, etc. should be used consistently and properly

Housekeeping should be considered. All equipment and surfaces should be cleaned and decontaminated after contact with infectious material. Potentially contaminated broken glassware should be picked up using mechanical means (broom and dustpan). Waste containers should be maintained upright and routinely replaced and not allowed to overfill. All infectious waste must be disposed of appropriately.

Many other practices which could minimize/eliminate exposure to infectious materials should be considered according to the specifics of each workplace.

All guidelines, recommendations and descriptions above are intended as a reminder that the most important elements of creating and maintaining a safe workplace are common sense, planning, and consistency in following a plan. More complete and detailed descriptions can be found in the CDC/NIH handbook, “Biosafety in Microbiological and Biomedical Laboratories” 3rd Edition, May 1993, U.S. Department of Health and Human Services or the OSHA Handbook, “Interpretive Guidelines of the Bloodborne Pathogen Standard”, Brenda Goodner, RN, MSN, CS, Skidmore-Roth Publications.